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THE COMING DEFAULTS IN JUNK BONDS

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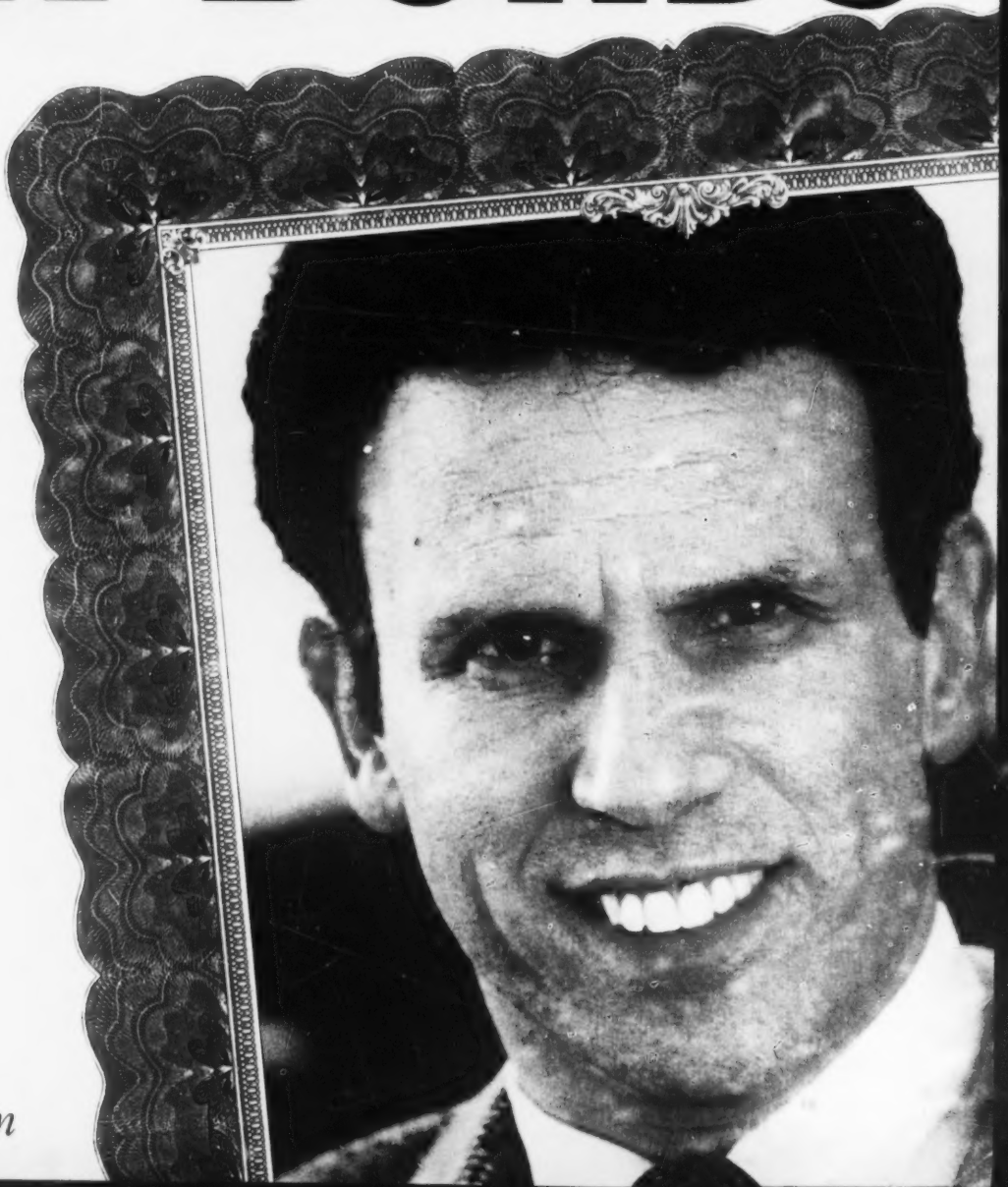

Under Fire: Drexel Burnham's Junk King Michael Milken

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FORTUNE THE COMING DEFAULTS IN JUNK BONDS

MARCH 16, 1987 VOL. 115, NO. 6

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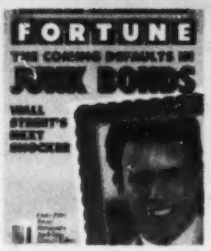

Roger Sandler photographed Michael Milken of Drexel Burnham. *See page 26.*

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THE EDITOR'S DESK

IT'S JUST after midnight, and I thought you might like to know something of what goes on in the FORTUNE offices on the night before our biweekly closing.

Across the hall, writer Ford S. Worthy and editor Walter Kiechel are applying the final polish to Worthy's remarkable analysis of the coming defaults in the high-yield, low-quality bonds known as junk. Worthy has been at work on this story since Christmas, helped by computer data on more than 500 companies and 1,000 bond issues. For the past two weeks, four of our reporters—Terence Paré, Andrew Serwer, Lorraine Carson, and Christopher Knowlton—have been on the phones double-checking the data directly with the financial officers of over 90 companies that have issued these bonds. The result is just the one-of-a-kind, ahead-of-the-news story that is FORTUNE's trademark.

TIMOTHY GREENFIELD-SANDERS

High-yield experts Ehrbar, Sherman, and Worthy

In the office next to mine, editor Al Ehrbar—who supervised this issue's cover package—and writer Stratford P. Sherman are punching in the last checkpoints on Sherman's story about the trials of Drexel Burnham, the creative and contentious investment banking house that turned junk into gold. Just one example of the scrupulous research that goes into a FORTUNE story: Reporter Rosalind Klein Berlin took seven pages of notes to fact-check a single sentence.

LISA BARNETT

Oil writer Newport

Worthy and Sherman are getting to be rather old hands on the investment banking beat. They wrote the two main stories in our December 22 cover wrap-up of "Wall Street's Spreading Scandal," and Sherman was the author of our all too prescient November 24 cover on "Wall Street's Overpaid Young Stars—Headed for a Fall?" For his story in this issue, Sherman and reporter Cynthia Hutton have been interviewing over 90 Drexel executives, clients, and customers.

Just down the hallway, editor Julie Connelly and writer John Paul Newport are discussing a few late refinements in another unique and penetrating story—about the coming crunch in oil. Newport grew up in Fort Worth, where oil is a way of life. But he has become more expert on the subject in the past month or so, as he and reporter Barbara Hetzer interviewed more than 40 economists, oil executives, and petroleum analysts and read a stack of abstruse reports. That's quite a stack. It reaches up to Newport's waist—and like almost any good Texan, he's 6 foot 4.

Marshall Loeb

MANAGING EDITOR

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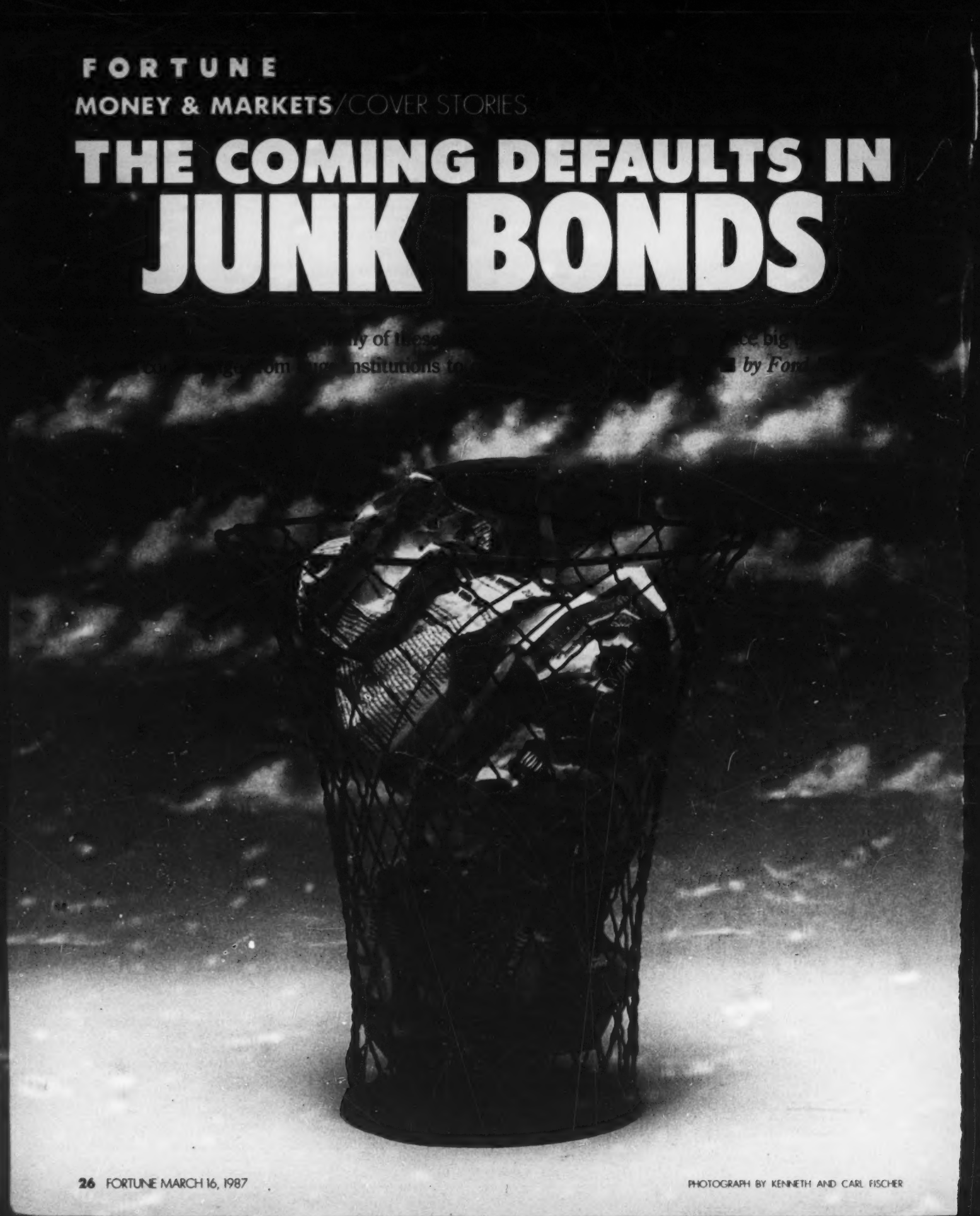
THE COMING DEFAULTS IN JUNK BONDS



PHOTOGRAPH BY KENNETH AND CARL FISCHER

LEVINE. Boesky. Siegel. Wall Street's gallery of rogues keeps growing, with every indication of more to come. But while the financial community waits nervously for the next insider trading scandal to break, another kind of shocker is brewing. Not as dramatic, perhaps—no one is likely to be led off in handcuffs—but with effects that ultimately could prove more far-reaching. The threat: an unprecedented level of defaults by the companies issuing junk bonds.

The fallout might rain down even on people who have never heard of these risky high-yield securities. Hundreds of institutions that have loaded up on the bonds could lose money, ranging from insurance companies to savings and loans. So could thousands of small-time investors who have bought shares in junk bond mutual funds. Undermine investors' confidence in junk bonds and you strike at the heart of Drexel Burnham Lambert, whose senior executive vice president, Michael Milken, pioneered their use and revolutionized corporate dealmaking in the process. Put a crimp in the ability of takeover artists to raise financing by selling junk bonds through Drexel or other investment banking firms, and the acquisition game slows down. Fewer companies will be menaced into restructuring, including some that still need to.

True, critics of junk bonds have been prophesying an imminent, cataclysmic wave of defaults for years (the sky is falling, the sky is falling). And true, despite the predictions, this high-yield corporate bond market has merely steamed ahead, proving amazingly resilient when bumps did occur. It bounced back after two jolts in 1986. In July, LTV, the giant steelmaker, went into Chapter 11 and stopped payment on bonds with a face value of $2.1 billion, the biggest junk default ever. Then came the revelations last November that Ivan Boesky, a big Drexel customer, had connived in illegal insider trading and was now cooperating with government investigators in search of other malefactors. Prices of junk plummeted after each debacle, but rebounded impressively, enabling the overall market, as measured by a Drexel Burnham index, to sport a healthy 19% total return for the year.

This time around it may be different. FORTUNE has made one of the first comprehensive attempts to find out how shaky the junk bond market really is. The answer: not as bad as some Chicken Littles have been saying, but much more worrisome than the defenders of junk would have us believe. The market for junk bonds won't collapse, but it could be rocked to its foundations.

In an effort to gauge the potential problem, FORTUNE enlisted the help of Houlihan Lokey Howard & Zukin, a Los Angeles consulting firm nationally known for its work in analyzing the solvency of companies. The firm scrutinized a universe of about 500 companies that altogether had junk bonds with a face value of $72.5 billion outstanding at the end of 1986. Studying these, it identified 36 companies whose bonds, with a face value of $4 billion, seem particularly vulnerable. Looked at another way, some 5.5% of the junk bonds in our sample appear to be vulnerable. At first glance, 5.5% might not appear that threatening. Look again: It's over three times the historical rate of default for publicly traded junk bonds, around 1.5% a year, which Drexel and others have harped on in touting the securities.

Put a crimp in the ability of takeover artists to raise money with junk bonds, and the acquisition game slows down.

These atomic bonds, as Houlihan Lokey calls the riskiest of them, are not necessarily destined to blow up or melt down. Many of the companies that issued them will undoubtedly find ways to survive: by bringing in new management, selling assets to repay debt, winning concessions from lenders, or selling out to stronger companies. Indeed, Drexel officials, who have expressed disdain for FORTUNE's project, say that the prospects for many of the companies listed here are so good that savvy investors would do well to view them as buying—not selling—opportunities. *Caveat emptor.*

To understand the danger that junk bonds present now, you have to understand the nature and history of the beast. The two major bond-rating agencies refer to junk securities—those rated BB+ or below by Standard & Poor's, or Ba1 or less by Moody's Investors Service—as "speculative grade." Drexel prefers the appellation "high yield." By any name this is the riskiest of all marketable corporate debt. But the spectrum of risk within the junk market is incredibly broad. For example, B.F. Goodrich Corp. junk bonds currently yield about 9% a year, an indication that investors regard them as much less risky than certain Bethlehem Steel bonds, which if bought today and held to maturity would, God willing, yield nearly 17%.

Junk bonds represent about $145 billion of the $550-billion totality of all corporate bonds. Approximately $125 billion of junk is what's called straight debt, bonds whose holders receive regular fixed-interest payments, typically every six months, until maturity, when the principal is repaid. Holders of convertible debt (about $20 billion outstanding) have the option to exchange the bonds for other securities—usually common stock. About a third of all junk bonds are "fallen angels" that began life with investment-grade status and grew riskier as the issuer's fortunes declined. The other two-thirds were junk from day one.

The market for junk has grown wildly—from about $1.5 billion worth of lesser-quality bonds issued in 1978 to $7.4 billion in 1983 to $48 billion last year—largely because of the super-salesmanship of Drexel's Milken, the preeminent figure in corporate finance today. From his offices in Beverly Hills, Milken convinced investors that the expected yield on a diversified portfolio of junk bonds *over*compensated them for the risks entailed. Such bonds are bought and sold mostly on the basis of the spread between their yield and the yield on risk-free government bonds. A typical junk bond portfolio yielding, say, 11%, currently enjoys a spread of about four percentage points over the 7% yield investors can earn on government bonds of similar maturity. In theory the spread owes to the likelihood that the junk portfolio will suffer losses over time, for instance as individual bonds default.

MILKEN'S GENIUS was to recognize that in any year only a tiny percentage of companies issuing such bonds had failed to make an interest or principal payment on time. Moreover, bonds that do default lose only a portion of their value. As long as history repeated itself, an investor with a diversified portfolio of junk could expect his total return to be reduced by default losses of just one percentage point a year. Junk bonds seemed to promise free money, Milken and his fellow Drexel salesmen told their clients, because even after subtracting expected default losses, total returns from junk would be far higher than risk-free Treasury bonds.

REPORTER ASSOCIATES *Lorraine Carson, Christopher Knowlton, Terence Paré, Andrew Evan Serwer*

Portfolio managers for insurance companies, pension funds, and mutual funds quickly caught on and poured money into the high-yield sector as never before. Everything else being equal, the flood of new money should have caused the interest rate spread between junk bonds and government bonds to narrow. Instead—and ominously—when interest rates on Treasuries and high-grade corporates began to fall a couple of years ago, yields on junk held steady. The wider spread was the market's way of saying that junk was getting trashier.

In their rush to invest, some institutional money managers skipped the exhaustive research that they customarily perform before buying risky issues, relying instead on the strength of the underwriter's endorsement. Many simply didn't have a sufficient number of qualified analysts to thoroughly screen the hundreds of new issues coming onto the market or to closely monitor the scores of issues already in their portfolios. In addition, junk issuers and their bonds proved to be

Too Hot to Handle?

While these junk bond issuers are the shakiest in our sample, they aren't all going to default. Some will scrape by, perhaps with the sort of exchange offer Drexel Burnham has pioneered for clients. Total debt includes bank debt.

ATOMICS

COMPANY	PRIMARY UNDERWRITER	DEBT/ EQUITY RATIO	TOTAL JUNK BONDS in millions	TOTAL DEBT in millions
Allegheny Beverage	Smith Barney	5.9	$192	$381
American Healthcare Management	Drexel Burnham	12.8	$80	$435
Cannon Group	Drexel Burnham	7.8	$243	$596
Care Enterprises	Drexel Burnham	4.2	$68	$179
Compact Video	Drexel Burnham	3.9	$80	$174
Consolidated Oil & Gas	None	14.8	$42	$104
Consul Restaurant	Piper Jaffray	3.7	$21	$26
Lifestyle Restaurant	L.F. Rothschild	2.9	$12	$16
Michigan General	Drexel Burnham	5.6	$110	$146
Pay 'N Save	Drexel Burnham	3.5	$295	$343
Pennsylvania Engineering	None	10.9	$12	$86
Penril	Drexel Burnham	3.2	$18	$35
Po Folks	Kidder Peabody	4.4	$16	$75
Pope Evans & Robbins	Bear Stearns	2.8	$35	$39
Preway	Drexel Burnham	10.3	$56	$60
Quanex	Drexel Burnham	2.5	$103	$112
Reading & Bates	Smith Barney	5.1	$60	$486
Spendthrift Farm	Prudential-Bache	3.7	$30	$44
Texas International	Drexel Burnham	2.8	$190	$298
Thousand Trails	Prudential-Bache	6.9	$57	$188
Wean United	None	3.6	$27	$37
Western Union	Salomon Brothers	3.9	$526	$924
Westworld Community Healthcare	Drexel Burnham	15.2	$65	$123
Winners	Prudential-Bache	3.5	$25	$49

SUBATOMICS

COMPANY	PRIMARY UNDERWRITER	DEBT/ EQUITY RATIO	TOTAL BONDS OUTSTANDING in millions	TOTAL DEBT in millions
Arrow Electronics	Bear Stearns	2.2	$110	$164
Ducommun	Donaldson Lufkin	2.8	$35	$160
Kaneb Services	Smith Barney	2.0	$55	$185
Kay	Bear Stearns	3.1	$10	$165
Lear Petroleum	Drexel Burnham	6.5	$196	$266
MCO Holdings	Drexel Burnham	4.5	$81	$327
Price Communications	Morgan Stanley	3.4	$375	$447
Radice	E.F. Hutton	3.3	$34	$168
Service Merchandise	Merrill Lynch	3.6	$300	$904
Texstyrene	Drexel Burnham	2.3	$50	$82
Universal Health Services	Morgan Stanley	3.0	$85	$333
Valero Energy	Shearson Lehman	3.4	$277	$897

Handle With Care

A little less risky than atomics, the subatomic bonds of these companies still need to be approached with caution. Like the atomics, they're vulnerable, not necessarily doomed. Virtually all bonds outstanding are junk grade.

complex creatures that sometimes didn't lend themselves to analysis with traditional financial models. An executive at one rating service says that more than a third of the money managers he advises don't do any independent research on the bonds they buy.

HAD THEY DONE their homework, they might have been wary of that low historical default rate. To begin with, the default rate for publicly traded junk debt—which averaged 1.5% annually for the period 1974-86, according to New York University finance professor Edward Altman—is based in part on years when the total amount of junk was paltry by today's standards. Nearly two-thirds of all outstanding junk bonds were issued in just the last three years, roughly half in the last two years. As Altman notes, it generally takes a few years for even the worst junk to spoil, so the most recently issued stuff hasn't had a real chance to affect default rates. Nor has the junk of recent vintage had to weather a downturn in the economy.

More important, the nature of the bonds in the market appears to have changed significantly in the past few years. In 1986 an estimated $12 billion in new junk bonds—roughly 25% of all the junk issued—was sold in connection with leveraged buyouts, those extra-risky transactions where new owners essentially hock a company to buy it. In previous years LBO-related bonds represented such a small portion of the market that nobody bothered to keep statistics on them. It's not uncommon for LBOs to have nine parts debt for every one part equity, a recipe that few companies can live with for long. The people who do LBOs count on being able to swiftly pay down that debt by selling off some of the company's assets. "Everybody in an LBO deal is going for a quick home run," says a New York banker. Lots of junk owners could go down swinging if a recession slows down that resale market.

Most default statistics also fail to take into account instances where issuers come within an eyelash of bankruptcy before some sort of rescue mission saves them. Among the most common rescue operations is the exchange offer: A company gives its bondholders new securities in exchange for the old bonds. A company out of cash and on the brink might ask its bondholders to accept new bonds that carry a lower interest rate, or permit interest to be paid in stock rather than cash. Says Ray Minella, who runs Merrill Lynch's high-yield operations: "Most such exchange offers are bankruptcies without the benefit of a judge."

James A. Schneider, a Drexel executive and an expert on exchange offers, says that the idea is to give the ailing company enough time to get to a "better doctor"—an outside investor, perhaps, who's willing to give the company a big infusion of equity. If the patient goes on to survive, the investors who hang on to the bonds can do quite well. But many investors choose to sell out, often at prices less than 50% of the face value of their bonds. That's so close to what bonds sell at

ILLUSTRATIONS BY STEVEN GUARNACCIA

just after defaulting—typically around 40% of face value—that some analysts refer to emergency exchange offers as "soft defaults." But these soft defaults don't show up in the historical rate.

The historical rate of default nonetheless continues to be the centerpiece of the case that Drexel and others make for junk bonds as a safe investment. Says Larry Post, Drexel's co-head of high-yield bond research: "Unless you think the overall credit quality of the market has gone down, there is no reason to believe that default rates in the future won't be similar to those of the past."

But that larger spread between junk and high-grade bonds suggests that the overall credit quality has gone down. Other evidence points the same way. For instance, the proportion of new junk bond issues landing in Standard & Poor's or Moody's lowest-rated categories or going unrated has increased from 6.3% of new issues in 1980 to over 40% last year, according to IDD Information Services, a research firm.

No one has a perfect formula to measure the risk that a company will default on its debt. S&P and Moody's, in making their judgments, consider a broad range of financial data reflecting both the company's past performance and management's projections for the future. They also make more subjective assessments: How sound is management? How likely is potential litigation against the company?

WHILE those judgments may be quite valuable, FORTUNE asked Houlihan Lokey to devise a more rigidly objective series of measures to spot especially vulnerable companies. The approach that resulted relies heavily on how the marketplace values a company's stock. Says Marko A. Budgyk, the Houlihan Lokey analyst who developed and managed the study: "We believe that by looking at a company's stock price, you can get a very accurate reading of how investors perceive the company's prospects. In effect, you've got a million different investors telling you what they think of management, of that potential strike on the horizon, of that new product the company intends to conquer the world with."

Houlihan Lokey combed through both Standard & Poor's and Moody's bond guides for January, identifying companies with at least one straight or convertible bond outstanding that either agency rated as junk. From that sample of 792 companies, representing $125 billion in junk, it eliminated firms whose $33 billion of junk bonds are publicly traded but whose common stock is not. The study also excluded electric utilities, representing $11 billion in bonds, and banks and other financial services compa-

Sunken Junk

The junk bonds of these companies have defaulted since January 1, 1986, and remain in default. Note the absence of Drexel Burnham among the underwriters; it rescues many clients before default.

DEFAULTED COMPANIES

COMPANY	PRIMARY UNDERWRITER	TOTAL BONDS IN DEFAULT in millions	TOTAL DEBT in millions
Argo Petroleum	Shearson Lehman	$35	$66
Chapman Energy	Thomson McKinnon	$22	$45
Digicon	Paine Webber	$55	$113
ICO	Prudential-Bache	$30	$43
Kenai	Offerman	$73	$77
LTV	Merrill Lynch	$3,100	$3,800
McLean Industries	First Boston	$343	$1,089
Smith International	Morgan Stanley	$73	$498
Texas American Oil	E.F. Hutton	$25	$38
Towle	Salomon Brothers	$23	$68
Wedtech	Bear Stearns	$113	$140
Western Co. of North America	Smith Barney	$38	$374
Zapata	Shearson Lehman	$78	$663

nies, another $9 billion. Both have characteristics that make comparisons with industrial and nonfinancial service companies of little value. Finally, there was no way to assess junk bonds issued in private placements, a category that represented $23 billion in new issues over the past two years, according to Merrill Lynch.

Houlihan Lokey next evaluated the remaining junk bond issuers in terms of three market-based criteria: the total market value of the company's stock and equity equivalents, the volatility of its stock price, and its leverage. The analysts calculated each company's leverage, dividing total debt by the market value of the equity. Total debt figures were based on the most recent quarterly financial statements. For the equity part of the ratio, Houlihan Lokey used the market value of each company's equity on January 30. FORTUNE subsequently asked each company to confirm its debt and equity figures; if a company reported significant changes on its balance sheet since its last financial statement, we used the fresher numbers.

AS A COMPANY'S leverage increases, its ability to service its debts usually declines and the risk of default rises. In the view of Houlihan Lokey and most other experts, big companies, with more equity outstanding, are able to tolerate higher leverage than their smaller counterparts. Small companies—those with equity of less than $100 million—were considered vulnerable if their debt-to-equity ratio exceeded 2.5 to 1. Companies with between $100 million and $250 million in equity were considered vulnerable if their leverage was more than 3 to 1. For companies with equity of $250 million to $500 million, the cutoff point was 4 to 1; for companies larger than that, 5 to 1.

To show up on the final lists, a company with that high leverage had to meet yet another test. Houlihan Lokey took a reading of the relative stability of each company by measuring the price volatility of its common stock over the preceding six months. The higher a company's volatility, the greater the daily changes in how investors expect it to perform in the future. In general, companies with high volatility are perceived to be riskier than companies with low volatility.

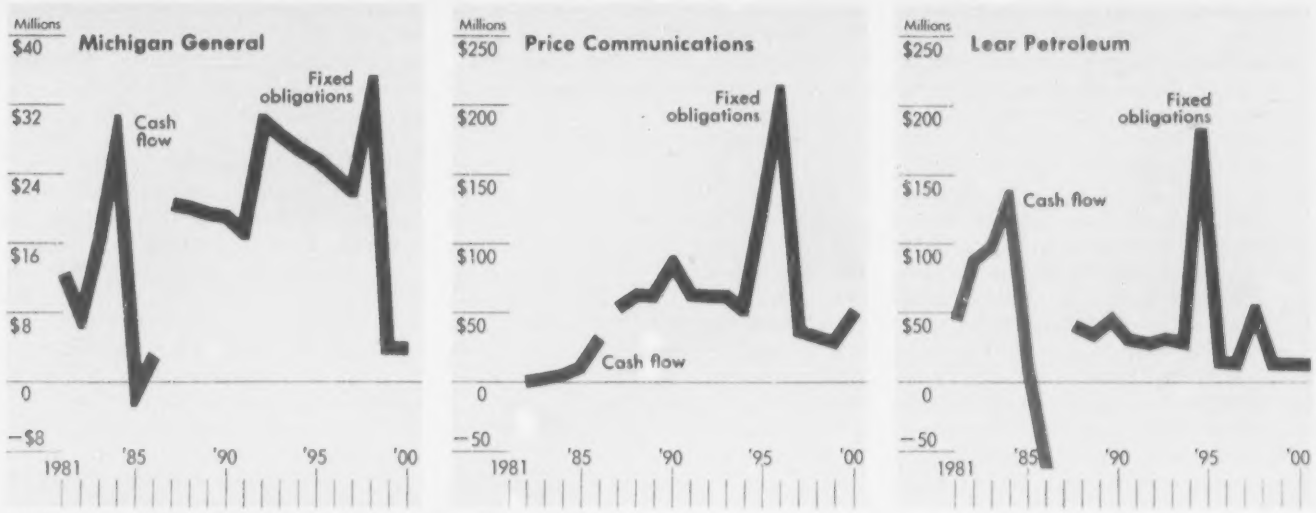
What emerged from this sifting and resifting were 24 "atomic" companies whose junk bonds are highly vulnerable to default. Twelve others, either not so highly leveraged or not so volatile, were judged by Houlihan Lokey as slightly less risky, but sufficiently dicey to qualify as "subatomic." Again, this does not necessarily mean that the companies are going to default. But they do appear to face substantially higher risks than their peers within the world of

QUALITY JUNK

COMPANY	PRIMARY UNDERWRITER	DEBT/ EQUITY RATIO	TOTAL JUNK BONDS in millions	TOTAL DEBT in millions
Caesars World	Drexel Burnham	0.8	$233	$495
Castle & Cooke	Goldman Sachs	0.4	$173	$455
Circus Circus	Drexel Burnham	0.2	$75	$180
Federal Paper Board	First Boston	0.6	$144	$472
Fuqua Industries	Shearson Lehman	0.5	$159	$311
GAF	Drexel Burnham	0.3	$486	$486
GenCorp	Kidder Peabody	0.1	$103	$208
B.F. Goodrich	Goldman Sachs	0.4	$92	$489
Rorer Group	First Boston	0.5	$326	$452
Tele-Communications	Drexel Burnham	0.8	$505	$2,163
Telex	Drexel Burnham	0.1	$21	$106
Texaco	Salomon Brothers	1.0	$6,722	$9,394
United Brands	Drexel Burnham	0.2	$96	$135
Whittaker	Dominick & Dominick	1.0	$44	$268

Top of the Junk Heap

More like investment-grade outfits than junk, these companies have low leverage, low stock-price volatility, and a lot of equity. Indeed, the junk bonds of some of these companies might end up being upgraded.



Where Will the Money Come From?

These spiky graphs compare approximations of each company's operating cash flow over the past five years with the Houlihan Lokey firm's estimates of how much cash will be needed in the future to cover their fixed obligations. These include interest on their debt, the principal as it matures, and dividends on preferred stock. The case of Price Communications illustrates one shortcoming of this kind of analysis: According to its most recent available balance sheet, the broadcasting company has approximately $200 million of cash it could use to pay down debt. The graph doesn't reflect that.

junk. Houlihan Lokey didn't estimate probabilities of default, nor did it predict when default might occur.

The main strengths of the Houlihan Lokey approach stem from its reliance on the information captured in a company's stock price. Larry Post of Drexel has used a similar approach, in fact, in analyzing junk bond issuers for almost ten years. But as Post and others point out, the method has its limitations. For example, debt is sometimes structured so that the issuer can make interest payments in the form of shares of stock during troubled times, thus conserving precious cash. And companies don't make any cash payments on zero-coupon bonds until the bonds actually come due. In such cases, companies may find extraordinarily high leverage quite tolerable.

Houlihan Lokey's method also fails to consider the amount of cash a company has in the bank—"Cash being one of the best ways I know of," Post observes, "to make the interest payment on a bond." The towering pile of cash currently on the books of Revlon Group, a company that narrowly missed the cutoff for subatomics, is a big reason that the bond research firm McCarthy Crisanti & Maffei rates the company as having a mere 2% chance of default in the next two years. But, says Philip Maffei, noting that Revlon is controlled by the acquisitive Ronald Perelman, "you can't assume that all that cash is just going to sit there for the benefit of bondholders." That's why his rating firm believes the possibility of a Revlon default in the next *five* years is closer to 10%.

These important caveats aside, the companies on FORTUNE's list include some real prizes. Even as Houlihan Lokey was doing its initial sorting, Chapman Energy, a Dallas oil and gas company, defaulted on junk bonds with a face value of $22 million. Spendthrift Farm, a Kentucky horse-breeding operation that's an atomic, and subatomic Kaneb Services, an oil services company, both announced that they expect not to make interest payments due later this year. Says Kaneb's vice president, Robert Pando: "That's why they call them high-risk bonds."

NOT SURPRISINGLY, most of the companies listed as atomic or subatomic are working overtime to bolster their balance sheets. In the past year, several have exchanged some of their old bonds for new ones with terms more lenient to them. Others, including Westworld Community Healthcare, are planning exchange offers. Lear Petroleum paid off enough bank debt in early January to transform itself from an atomic company to a subatomic.

Many executives at the listed companies took strong issue with Houlihan Lokey's methodology. Others argued that in going purely by the numbers the study failed to consider important mitigating factors. For example, Valero Energy, a subatomic, plans to spin off its natural gas pipeline operations into a limited partnership, a transaction that the company says will raise $700 million—cash it will use to pay off enough debt to cut its borrowings by more than half. Texas International has agreed to sell $120 million of assets for cash it can use to pay down its debt. An executive at Quanex, an atomic, emphasized that, unlike most junk bonds, its bonds are secured by a lien on two of its steel plants. "At the first default," he says, "the bondholders get the plants."

Who owns the junk that's likely to show up on the next heap of defaults? High-yield mutual funds own about $26 billion in junk, according to Lipper Analytical Services. FORTUNE examined the portfolios of 35 of the 50 or so funds that invest mainly in junk bonds, using the most up-to-date quarterly reports available. Four were too old to consider. The remaining 31 dated from June to December of last year. If atomics and subatomics in a fund's portfolio represented the same proportion as they do of the entire junk universe—including bonds FORTUNE excluded from its sample—then each fund would have about 2.8% of its holdings allocated to these most vulnerable types. As a group, however, the funds appeared to have a slight predilection for the risky stuff. Twenty-four of the 31 funds had more than 2.8% of the total value of their bond holdings invested in atomics or subatomics. The percentage of risky junk varied considerably from fund to

fund: In June, Bull and Bear High Yield Fund owned atomics and subatomics with a face value of $20 million, representing about 18% of its $111 million invested in bonds. At the other extreme, Vanguard's High Yield Bond Portfolio, with total bond holdings of $954 million last July, owned atomics and subatomics amounting to only 1.9% of its portfolio.

Besides junk bond mutual funds, few buyers of junk disclose much about what they own. Pension funds, which own an estimated $15 billion in junk, must report their holdings only once a year, and only to the Internal Revenue Service, which doesn't make the information public. Insurance companies ($40 billion) open the kimonos on their portfolios only once a year, in publicly available statements they file with state insurance commissioners. While most statements currently available are too old to matter, FORTUNE checked the December 1985 portfolios of Executive Life of New York and Presidential Life, both well known for investing in junk. They seem to be particularly savvy junk collectors: Both had minuscule holdings of atomics and subatomics. "I don't like the small deals," sniffed an investment officer at one of the companies as he was read the names on FORTUNE's lists.

While a few institutional investors may have portfolios overloaded with the junkiest junk, it seems likely that the riskiest stuff is fairly evenly distributed. If the rest of a money manager's junk bonds perform as well as they have in the recent past, a default rate as high as 6% would knock down the total return on his portfolio by approximately 3.65 percentage points, an estimate based on Professor Altman's studies of how much value bonds typically retain after defaulting. In other words, the return would be reduced to about what he could earn on government bonds.

But *will* the other 94% of junk bonds go on performing as well as always? A 6% default rate would probably shake investors' confidence in a far broader segment of the market. An exodus from junk to higher-quality investments—or from low-grade junk to high-grade junk—could send bond prices tumbling. Even investors perspicacious enough to have avoided the defaulted bonds could see the values of their portfolios shrink, at least until the market regained investors' faith.

A RECESSION could have far more drastic consequences. Most economists say that as long as the economy keeps chugging along they won't worry too much about the junk bond market. But they add that even a modest downturn later this year, a scenario that few economists are predicting, could jeopardize junk issuers in already weak industries such as steel, construction, and restaurants. "Massive failures of companies with junk bonds are a distinct possibility in a downturn," says Edward Yardeni, chief economist for Prudential-Bache Securities. A shakeout, he says, "could feed on itself. Because there are so many companies financed this way, there could be sort of a domino effect."

What seems more likely is the emergence of a two-tier market in junk bonds. Investors and rating agencies, more aware of the vastly different tiers of quality, probably will invent a new line to divide "investment grade" junk from the "speculative" stuff. Drexel's Post, for one, maintains that the amount of independent analysis performed by junk investors has increased "substantially" in the past year. Drexel's competitors, seeking to make a name in the business, are also committing more resources to credit analysis.

There's quality—of sorts—to be had. Over the past two years, as Morgan Stanley's Martin Fridson notes, an impressive number of large, highly liquid junk issues have come onto the market, issued by the likes of BCI (formerly Beatrice), Colt Industries, and Phillips Petroleum. Another encouraging sign: Some issuers are beginning to pay off their junk debt by selling stock. If the stock market stays strong, many companies will have an opportunity to convert some of their debt into equity.

The emergence of big issuers along with scores of midsize but equally solid companies stands to encourage more investors to participate in the junk market. In fact, 15 large insurance companies surveyed recently by Morgan Stanley suggested that they ultimately plan to invest an additional $20 billion in high-yield bonds. That will presumably mean still more credit analysts crunching the numbers.

As more investors join the chase for high yields, the market should grow more efficient. The interest-rate advantage that quality junk bonds have offered compared with high-grade corporates should narrow. Indeed, while more junk bonds than ever before are likely to live up to their name over the next few years, far more are apt to become known by a new, less pejorative label. Blue-chip junk, anyone?

BANKS, TOO, LIKE JUNKY COMPANIES

■ Where there are junk bonds, there are often junk bank loans. Bankers generally don't like to talk about how inextricably connected to the junk bond market they have become. But contrary to the popular perception that companies that issue junk bonds aren't solid enough to borrow from banks, many issuers have apparently had no trouble lining up ample supplies of bank debt. Of course, they also pay a higher rate of interest on their loans than the average corporate customer. In addition to their junk bond borrowings, the companies on our atomic and subatomic lists owe another $5 billion—much of it to banks. Houlihan Lokey estimates that all the junk bond issuers it evaluated in creating the lists together owe close to $200 billion in bank debt.

Bankers insist that *their* loans are "well protected," whatever other defaults may occur. While loans to junk issuers are not generally secured by specific collateral, banks almost always have first claim on a company's assets in the event it goes bankrupt and has to liquidate. The bankers also fill their loan agreements with myriad covenants that give them the right to step in if a borrower starts getting sickly. "I've done deals where I knew my loan could be repaid no matter what kind of trouble the company eventually got into," says a top executive at a major New York bank. As for the bondholders, he adds, "I wasn't so sure they'd see their money back in a bankruptcy situation." For taking that extra risk, of course, junk bond investors earn a higher rate of interest than the banks do on their loans.

There is little indication that banks will want out of the market any time soon. First Chicago, Drexel's lead bank, did catch the junk bond jitters shortly after the Boesky affair broke, telling Drexel that it would no longer accept junk securities as collateral for short-term loans to the same extent it once had. But most banks continue to look at high-risk companies with the same hungry eyes as investors who buy their bonds.

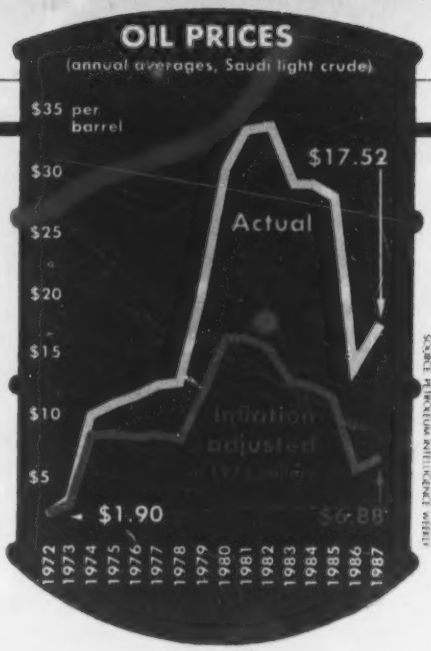
LOOKING AHEAD

GET READY FOR THE COMING OIL CRISIS

The price of crude is settling down—for a while anyway. But in a few years the U.S. is likely to be back in thrall to OPEC, fretting nervously about the next embargo. More drilling now, conservation, and—believe it or not—higher prices would help. ■ *by John Paul Newport Jr.*

In a wildlife refuge *on Louisiana's gulf coast, a drilling rig probes for oil and gas. Wilderness areas hold the most promising U.S. petroleum deposits.*

PHOTOGRAPH BY JAN STALLER



A YEAR OF Texas-size swings in the price of crude has turned the oil patch into the trenches. Like the survivors of Verdun after the shelling stopped, the U.S. petroleum industry is spooked. True, the Organization of Petroleum Exporting Countries has apparently agreed to hold the price of oil at $18 a barrel, but the cartel has tried to agree on prices before and the troops are suspicious. Says E. H. Clark Jr., chief executive of Baker International, the giant oil field services company in California: "We're all afraid to stick our necks out of the trenches to see if the war is really over. But there's optimism. Maybe we have seen the worst."

Maybe they have. A surprising consensus has developed among petroleum experts worldwide that the benchmark Saudi light crude will sell in a range of $18 to $20 a barrel (measured in 1987 dollars) for several years to come. Prices will bob, more likely down than up, owing to the vagaries of commodities markets and the notoriously wavering discipline of the cartel members. In late February, for example, prices were slipping toward $17. But barring the outbreak of a major new Middle East war or revolution, there should be no repetition of gut-wrenching gyrations such as those of last year when oil that sold for $27 a barrel in January was fetching $10 by summer and then shooting up to $18 at year-end. Prices should be steadier than that until the early 1990s, when they will rise as world demand for crude approaches the capacity of the producing nations to supply it.

The perception that underlies this ideal view is that a mature OPEC has finally mastered the principles of basic economics. Recent years taught the cartel that insisting on top dollar for its product cost it business and hastened a market collapse. High prices really did curtail demand: The Carter Administration in 1978 foresaw petroleum use in the non-Communist world growing from 51 million barrels a day to 60 million by 1985. In fact, demand *shrank* to 46 million barrels a day in 1985.

Moreover, the high prices that OPEC maintained for oil made exploiting new fields in Alaska, Mexico, and the North Sea extremely profitable. Production in non-OPEC countries grew 28% from 1979 to 1985, topping out at 25.6 million barrels a day, a quantity nearly equal to OPEC's entire capacity. Most petroleum economists and industry executives believe that Saudi Arabia is resolved for the time being to keep oil below $20 or $22 a barrel by flooding the market if prices begin to rise. It did just that in 1986 with disastrous consequences for OPEC.

REPORTER ASSOCIATE *Barbara Hetzer*

Yet another lesson learned the hard way was that if cartel members sell their oil without restraint, as Nigeria, Algeria, and others are wont to do, prices crater exactly as the economics textbooks predict. Cartel discipline may well lapse again, causing prices to plunge briefly to as low as $10 a barrel, but the recidivists are likely to reform faster in the future than they did last year. Says William M. Brown, director of energy studies at the Hudson Institute in Indianapolis and a prescient oil observer: "The experience of 1986 was a real shocker to every OPEC country, bar none. They saw that $8 oil, $7 oil, even $6 oil is possible." In January, Ecuador, an OPEC member that derives 70% of its export earnings from oil, failed to pay the interest due on its $8.1 billion of foreign debt. One of the few less developed countries that have made a point of paying their bills on time, Ecuador has been mired in economic problems resulting from the oil price collapse in the first half of 1986.

At $18, oil is high enough to sustain a profitable U.S. petroleum industry—but barely. The picture of oil that emerges in the years ahead is of an industry reduced in size, roustabout lean and rattlesnake mean, and cautious about committing huge sums for exploration and drilling. Gone will be the Rocky Mountain mobile-home boomtowns, the gaudy Texas gaucherie of Rolls-Royces converted to pickup trucks, and the fly-by-night operators drawn to oil fields by the gold rush prices of the early 1980s. The challenge for most companies will be simply to hang on for better times.

Those better times will be long in coming, however, unless the nation seriously addresses energy policy. The problem with low prices is that they encourage consumption while they discourage domestic production by rendering it uneconomic. Thus, the U.S. ultimately becomes dependent on foreign countries for its oil. The government's task should be to stimulate domestic production, encourage conservation, and spur the development of alternative sources of energy.

The real beneficiary of today's cheap oil is the U.S. economy. Although $18 a barrel is an increase of 80% from oil's summertime low, consumers will continue to get a break on their gasoline and heating bills; manufacturing costs will stay low, helping put a lid on unemployment; and the gross national product will get a healthy fillip. However, the warm narcotic of cut-rate crude is blinding the nation to the serious problem of steadily rising foreign imports.

Already the trends are apparent. From January 1986 to January 1987, U.S. crude production declined by 680,000 barrels a day, a huge 7.5% drop. Meanwhile, U.S. consumption increased by 400,000 barrels a day, growing at a faster rate than the gross national product for the first time in nine years. As a result, imports spurted by more than a million barrels a day. The American Petroleum Institute estimates that if the price stays at $18 a barrel, imports will rise from 39% of total U.S. consumption last year to more than 50% in 1991. By comparison, at the time of the first Arab embargo in 1973, imports amounted to 35% of consumption; by 1979 they accounted for 46%. Although the U.S. tries to import most of its oil from such near neighbors as Canada, Mexico, and Venezuela, in a global market, shortages and price rises affect everyone equally. And of all the oil that countries export, fully 40% comes from just five Mideast producers. Warns Chevron Chief Executive George Keller, who is the chairman of the API: "Once again our country is confronted with the possibility of a major energy crisis."

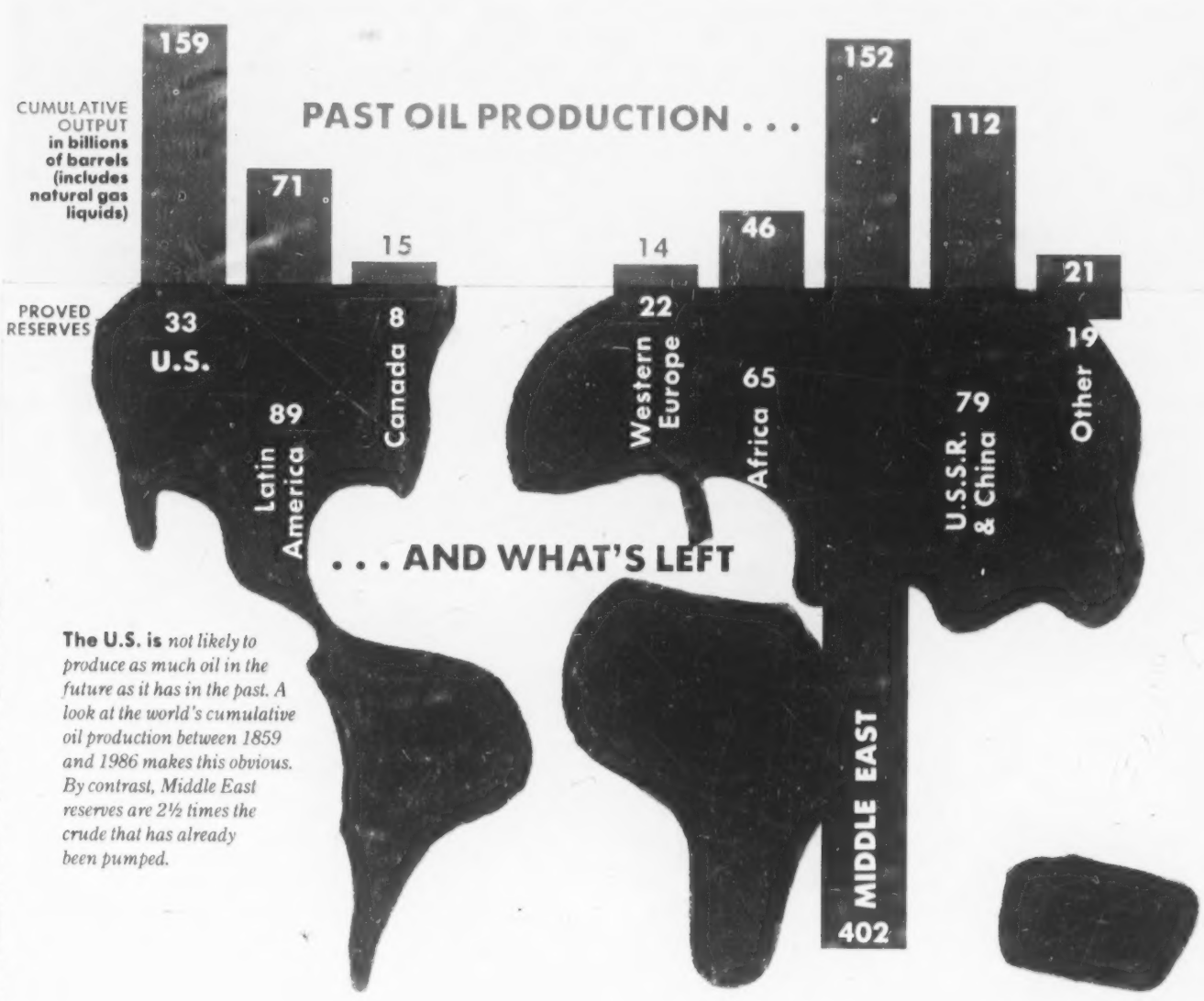
IT IS DIFFICULT to predict the exogenous event that would touch off such a crisis. The Iranian revolution, which provoked the 1979 shock, caught everyone flat-footed, as did the Arab oil embargo of 1973, which followed the Yom Kippur war. An Iranian victory in the Iran-Iraq conflict, however, could presage yet another oil price jolt. Iran is a price hawk. Like several other OPEC members with limited petroleum reserves, it cares little about nurturing a long-term market and a lot about forcing up prices

now. A victorious Iran, with its kamikaze army and highly exportable fundamentalist religion, could easily intimidate nearby Kuwait and Saudi Arabia into cutting production to push up the price or to humble the Satan residing in the White House. Economist Alan Greenspan and others believe Iran is already pressuring the Saudis to do just that. Says he: "OPEC is now Iran–Saudi Arabia."

Tight markets increase tensions. Right now, demand in the non-Communist world for oil is about 47 million barrels a day; that's about 12 million barrels a day less than world capacity to produce it. Two-thirds of that excess capacity resides in the Middle East. But in three to five years, economic growth in the West as well as in Third World countries will sop up that surplus. Then, even the slightest Middle East contretemps that closes some spigots could seriously disrupt the economy of any nation that is highly dependent on the region for its oil. That is what worries Chevron's Keller and other industry experts.

THE ACCORD that the squabbling OPEC nations reached last December in Geneva establishes an export quota of 15.8 million barrels per day for all 13 of them. Unfortunately, that level invites cheating by such revenue-hungry members as Iran and Iraq, but the ranks appear to be holding—sort of. In February, Saudi Arabia and four American oil companies that make up the Aramco consortium signed a five-month purchase agreement at $18 a barrel. By late March or early April, demand for oil traditionally slackens, so this spring will be the first of a series of tests of the $18 mark. Notes Herbert Krupp, an oil analyst at Bankers Trust: "To maintain $18 a barrel OPEC will need to reach many, many agreements over the next few years, successfully renegotiating their quotas time after time." John Lichtblau, head of the Petroleum Industry Research Foundation, believes that if prices sustain a serious fall, OPEC members would meet quickly to readjust their quotas.

The longer OPEC can hold the line, the easier doing so will become. That is why so many economists give $18 to $20 oil a chance of prevailing. The price is high



The U.S. is *not likely to produce as much oil in the future as it has in the past. A look at the world's cumulative oil production between 1859 and 1986 makes this obvious. By contrast, Middle East reserves are 2½ times the crude that has already been pumped.*

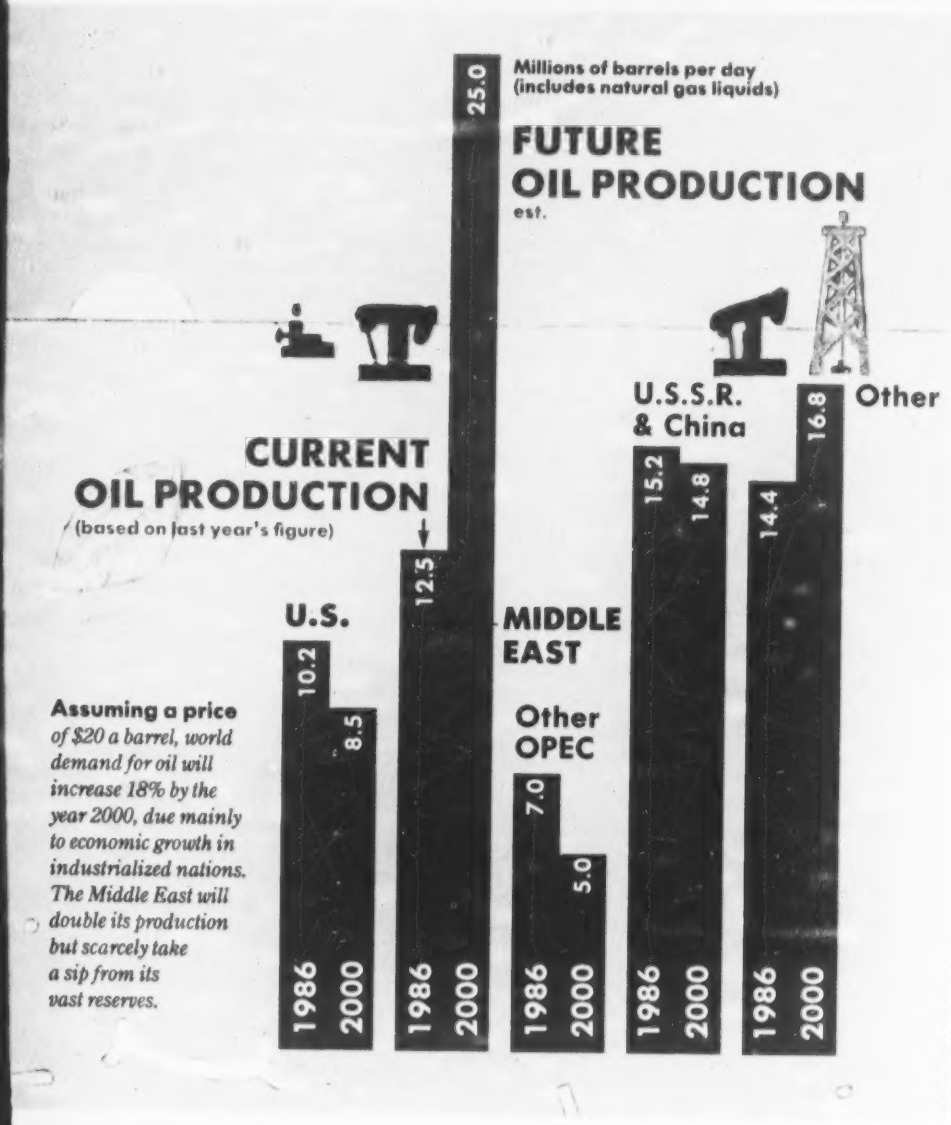
SOURCES: BP STATISTICAL REVIEW OF WORLD ENERGY; OIL & GAS JOURNAL; WORLD OIL

ILLUSTRATIONS BY JOSHUA SCHREIER

enough to provide OPEC nations with enough revenue to satisfy their immediate needs, but low enough to discourage a great deal of new production from non-OPEC sources. At $18 a barrel, oil users will not be tempted to conserve more than they do now, nor would they switch to alternative fuels as they did in the early 1980s. Thus, demand for OPEC oil could grow at about 4% per year, and members' production quotas would gradually inflate.

By 1990, OPEC will be producing at 80% of its capacity, vs. 66% today, according to a new report by the National Petroleum Council, an advisory group to the Secretary of Energy. The report notes that historically, when OPEC has reached 80% of its capacity—as it did in 1973 and 1979—the cartel "has been able to increase world oil prices and maintain them." The primary reason: Most of the excess capacity is in Saudi Arabia, Kuwait, and United Arab Emirates, three countries that rarely disagree on policy. Though the hard-earned wisdom of the early 1980s might keep the "mini-cartel" from pigging out on prices, they would yield enormous power. "Eighty percent is the danger signal," says George Mitchell, chairman of Mitchell Energy, a large production company in Woodlands, Texas. "That's when that little mini-cartel will drive you to the wall."

To a small but significant degree, the U.S. is better able to weather an oil shock than it was in the 1970s. Conservation and the exploitation of coal and other fuels have reduced oil's share of U.S. energy consumption from 47% in 1979 to 43% today. Furthermore, the 500 million barrels of oil sloshing around in hollow salt domes in Louisiana and Texas as part of the Strategic Petroleum Reserve could substitute temporarily for imported oil. But the economic costs of crude shock would still be severe: the 1979 version produced two recessions. And mere vulnerability to a jolt would significantly hamper U.S. leverage abroad. The Reagan Administration might have been hesitant to launch last year's punitive air strikes against Libya, an OPEC member, if world energy markets had been tighter. Indeed, there were reports that the Arab oil producers considered but rejected a boycott.



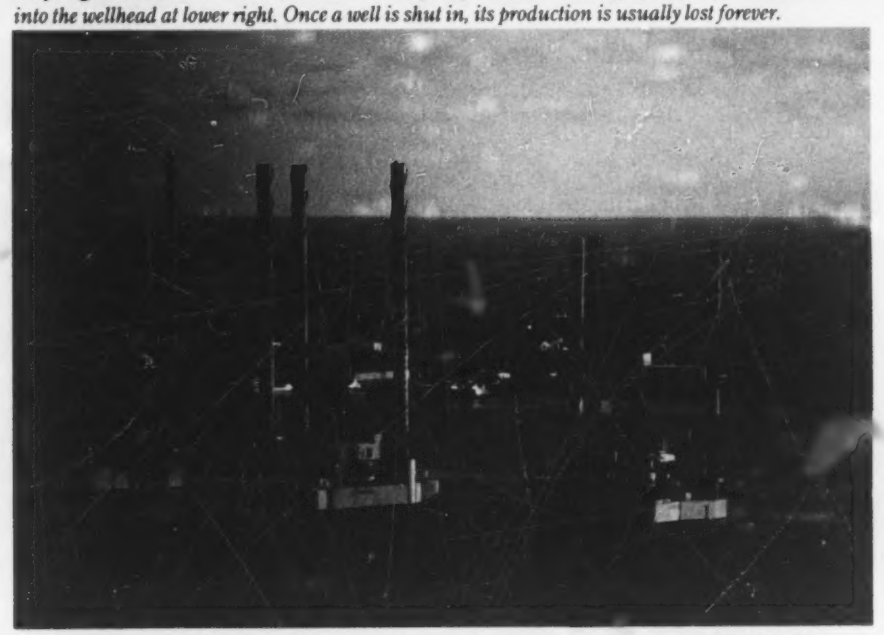
Declining prices have already devastated the U.S. petroleum industry. Last summer the Hughes rig count, a measure of drilling activity, slipped below 700 for the first time since World War II but it has climbed back to 806. In 1980, when the spot price for the benchmark Saudi light crude was up in the ozone layer at $39.75, there were 3,220 drilling rigs boring into U.S. rock and seabed. Those legendary Texas wildcatters, made Midases overnight with lucky hits, are now drilling only one or two exploratory wells a year, and many have gone out of the business. Typical example: oilman Clayton Williams of Midland, Texas, who now gets more than half his diminished revenues from banking and telecommunications (see box, page 53).

NEARLY 300,000 industry workers have been laid off since 1982, 80% of them in the oil field services industry, where four out of ten companies have dropped out of business. "I don't think you can afford to wipe out your staff," says Shell Oil Chief Executive John Bookout. "You may hire the bodies back, but it won't be the same well-oiled team that works together." Today geologists step lively as bellhops in Houston hotels, and unemployed drill hands have either drifted into other fields or resorted to poaching game to feed their families. The stream of professionals entering the business is drying up. Last year 192 students were enrolled in petroleum engineering at the University of Texas, down from 1,112 in 1982.

E. H. Clark, Baker International's C.E.O., has had to cut more than 10,000 workers from his payrolls. "It does tear your heart out to see what you're doing to families and lives," he says. "Probably the hardest part is the process of closing down and

BRAGAN PHOTOGRAPHY (2)

To plug a well *near Victoria, Texas, workers pump cement under high pressure from the truck into the wellhead at lower right. Once a well is shut in, its production is usually lost forever.*



Unused rigs *parked in the Sabine River channel near Port Arthur, Texas, may idle there for years waiting for the surge in oil prices that will spark drilling. Meanwhile, the owners pay carrying costs.*

selling off all the things you've built up and hired people for, and realizing that a whole way of life is going to be changed."

That change is likely to be permanent. For the sad fact is that U.S. oil production is in a sure decline. In the 80 years after 1859, when petroleum was introduced as an alternative to whale oil—thereby saving many a whale—the nation produced fully 64% of all the world's oil. Because drillers always tap the largest, cheapest, easiest-to-get-to deposits first, the ones that remain become progressively smaller and costlier to exploit. Thus, says Arco President Robert Wycoff, "even $30 a barrel was really not high enough to do anything more than barely keep production in the U.S. at a constant level. At today's prices, production will decline." Wycoff's view that this process is inevitable is widely shared. U.S. output started to decline in 1970 and continued through 1977 until Alaskan crude reversed the trend. But even that production will taper beginning in 1989, and estimates of the future slope of decline run in the range of 3% a year.

The U.S. is by far the most poked and prodded piece of landscape in the world. Geologists think nothing of plunging pipe several miles into the earth's crust looking for deposits a fraction the size of Spindletop and the great East Texas discoveries of the early decades of the century. As a result, the United States now needs 650,000 wells to pump its daily 9 million barrels of oil—not including natural gas liquids—because the average well pumps only 14 barrels a day. Five Mideast OPEC nations also produce about 9 million barrels a day, but those countries need only 3,000 wells to do the job because each pumps an average 3,100 barrels a day.

Middle East production costs are less than $1 a barrel, and the cost of finding new oil is negligible. It's a slight exaggeration to say that you could plunge a spoon into those huge deserts and the liquid would gurgle up. By contrast, U.S. production costs are roughly $7 a barrel, and finding costs, though hard to calculate with precision, are about $10, according to Arthur Andersen, the accounting firm. Says George Mitchell: "We're a high-cost country when it comes to exploration and development. The easy stuff is gone." Geology is destiny, and this is the primary reason why an industry that could make money with Saudi light selling at $1.90 a barrel in 1972, the inflation-adjusted equivalent of $4.84 a barrel today, now moans about $18.

LOWER PRICES are forcing the industry to make some permanent cutbacks in drilling. For example, more than 90,000 of the nation's 450,000 stripper wells have been shut down since 1982. Stripper wells, owned by major oil companies as well as by tiny independent producers, pump fewer than ten barrels of oil a day and collectively supply 20% of domestic oil. But at $18 a barrel, many of these wells become uneconomic. Their income does not cover the costs of electricity to run the pumping unit, of reading the meters that monitor pressure, and of paying a royalty on the lease. Since oil and the toxic chemicals used in servicing wells can seep into and contaminate underground water supplies, most states require operators to cement up all unused stripper wells within a year. Even at higher prices, drilling through concrete to unplug the pipes, along with other start-up costs, would make

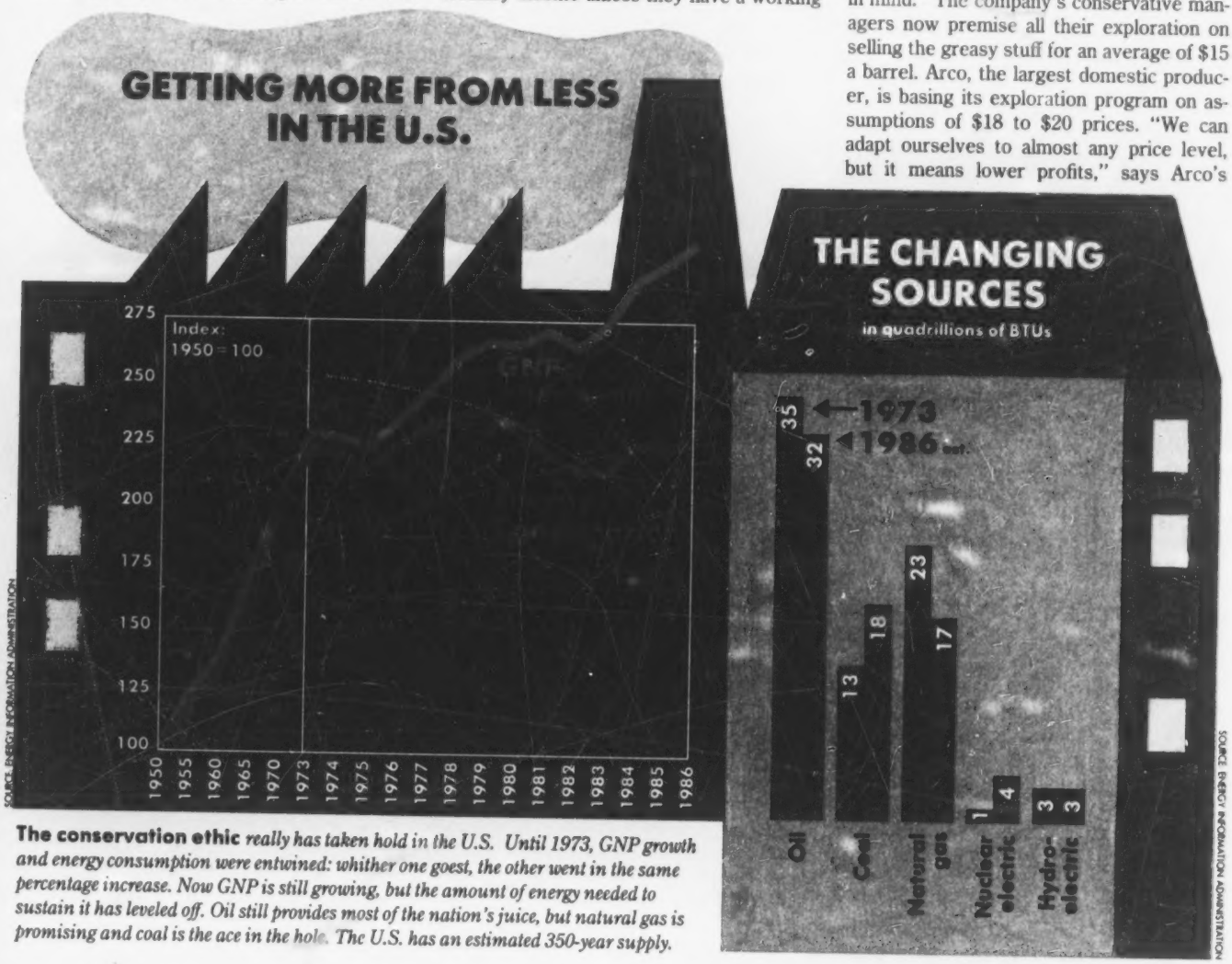
reopening most of these wells prohibitively expensive. The loss to U.S. production in the 1990s from shutting them in could run to one million barrels a day.

Financing the exploration that must be done today to yield production in two to ten years is difficult. Major oil companies are almost totally dependent on internally generated cash flow to fund their search. Last year, when prices averaged $15 a barrel, industry cash flow declined 44%, cutting exploration budgets by a third, to $26 billion. In addition, the dwindling cash flows of such major producers as Chevron, Phillips, and Unocal must be siphoned off to service high debt loads resulting from expensive mergers or shoot-yourself-in-the-foot tactics to repel raiders like T. Boone Pickens.

As a proxy for exploration, many majors are buying existing proved reserves, which is cheaper by a few dollars per barrel than finding new ones. But all they are doing is swapping assets without adding new supplies to the nation's oil cupboard. William Strevig, publisher of the *Quarterly Reserve Report* that follows such transactions, tracked a 67% run-up since 1984. "This buying and selling of resources is done by people who want to stay in business and can't justify drilling new wells," he says.

INDEPENDENT OIL COMPANIES, which drill about 85% of all new wells, and which must raise most of the cash they need for exploration from outside sources, have seen their traditional caches of capital dry up too. Banks, badly burned by energy loans in the past, are chary of making new ones. And the 1986 Tax Reform Act has made investing in drilling funds less attractive; investors cannot use the losses to offset ordinary income unless they have a working interest in the well, which exposes them to unlimited liability. Jeff Sandefer, at 26 a fourth-generation Texas oilman, observes that "if you take a business as risky as finding oil and gas and add price risk on top, you've given people an awfully good reason not to throw money into it."

Nonetheless, some companies continue to throw money into exploration and can find domestic oil profitably at $18 a barrel or even $15. Shell Oil, one of the most successful and best-managed U.S. oil companies, was able to replace 20% more oil and gas than it produced in 1986 at an average cost per barrel of less than $5; the company expects to do as well in 1987. Remarks C.E.O. John Bookout: "I'm not saying I'll like my return at $18 oil prices, but $18 will provide more than enough cash income to carry out the exploration program we have in mind." The company's conservative managers now premise all their exploration on selling the greasy stuff for an average of $15 a barrel. Arco, the largest domestic producer, is basing its exploration program on assumptions of $18 to $20 prices. "We can adapt ourselves to almost any price level, but it means lower profits," says Arco's



The conservation ethic *really has taken hold in the U.S. Until 1973, GNP growth and energy consumption were entwined: whither one goest, the other went in the same percentage increase. Now GNP is still growing, but the amount of energy needed to sustain it has leveled off. Oil still provides most of the nation's juice, but natural gas is promising and coal is the ace in the hole. The U.S. has an estimated 350-year supply.*

Robert Wycoff. Lower profits, however, meant that Arco had to scale back its program of oil and gas exploration and engage in a $3.4-billion stock buyback program to shrink its capitalization and buoy earnings per share.

The irony is that the times have seldom been so favorable for new exploration for operators who can raise the money. Drilling costs, depressed by the industry slump, are half what they were in 1981. With fewer bidders to compete for new leases and drive up the prices, attractive properties are available on better terms. Supercomputers help geologists pinpoint likely hydrocarbon deposits with greater accuracy, cutting the number of dry holes.

When prices were high earlier in the 1980s, oil companies pioneered other techniques to detect and extract oil and gas more efficiently. When prices fell, many of these procedures became too expensive, but they could be easily used again if and when it pays to do so. MIT economist M. A. Adelman has compiled historical evidence showing that increasing knowledge about the earth's crust and advances in extraction technology, which enable companies to recover a larger portion of each deposit, have almost continuously offset the increasing difficulty of finding oil. "We will *never* run out of oil," Adelman says. "The real problem is the cost of providing the flow of additional reserves." Michel Halbouty, a mustachioed Houston wildcatter who seems to have been born with a divining rod in his mouth, believes that technology will be the salvation of U.S. oil. "You put these new concepts together with the right incentives and higher prices, and I believe this country could be producing ten million barrels of oil a day within ten years," he gushes. However, Halbouty's views are far more optimistic than those of most of his colleagues in the industry.

PROPER EXPLOITATION of the nation's natural gas reserves could also postpone the effects of a diminishing oil supply. Natural gas takes the rap for being a scarce and declining resource. But discoveries made since the late 1970s suggest that gas resources may be many times those of oil. Although the exploration boom that followed decontrol of new finds created a gas "bubble" or surplus of some three trillion cubic feet—the nation uses 17 trillion a year—analysts expect demand will grow so long as the price of oil, to which natural gas prices are loosely tied, stays at $18 a barrel or more. Many of the nation's utilities would like to burn this clean fuel and are lobbying for the repeal of restrictive federal legislation (see box, page 56).

The Reagan Administration has a decidedly hands-off, free-market approach to energy policy. "There is nothing we can do as a government to stop domestic petroleum production from declining," says Energy Secretary John Herrington, leaning into his words. The industry is still paying for the days of "obscene" profits and for its decisions to reinvest those profits in ways that often offended Americans. The government should not be eager to finance further forays into retailing or office equipment. However, from a public policy perspective, the national interest suffers when the U.S. is heavily dependent on foreign oil. Among the proposals that politicians, economists, and industry executives advocate for a sensible U.S. energy policy:

> The U.S. will *never* run out of oil. The real problem is the cost of getting to those additional reserves that by now have become so difficult to exploit.

▶ **DROP THE CALL FOR AN OIL IMPORT FEE.** Enacting such a tariff on foreign crude is the most widely discussed remedy for too much dependence on imported oil. The arguments for it can be persuasive. Putting a $5 fee—a commonly cited figure—on each barrel entering the country would create a higher price for domestic producers and discourage consumption. A Department of Energy study released in April 1986 calculates that a $5 fee would reduce imports by 600,000 barrels per day and result in an extra $3.7 billion for the U.S. Treasury over five years. "The oil import fee would preserve the domestic industry so that when the price goes up they'll be there to do some extensive exploration," says Senator J. Bennett Johnston (D-Louisiana), chairman of the Senate Energy committee. "If we rely on the invisible hand, we're likely to get the shaft."

But the costs of a fee are likely to outweigh the benefits. According to the DOE study, raising the nation's cost for petroleum energy by $5 a barrel would over a five-year period boost inflation by 1% annually and reduce the growth in GNP by as much as 0.7% a year, thereby putting thousands of people out of work. More important, a fee would hurt U.S. industries that compete abroad by making them pay more than they do now for an essential raw material. Furthermore, to pass Congress, such a fee would have to have exemptions. Says the top strategic planner at a major oil company: "You'd get a Canadian exemption, a Mexican exemption, a consumer exemption. The heating oil people in Massachusetts would get preferential treatment. You'd get bureaucracy and it's counterproductive."

A gasoline tax would be far easier to administer than an import fee, since the government already collects 9 cents on every gallon that is sold. A Congressional Budget Office study concludes that imposing an additional 12 cents a gallon tax would cut oil imports by 100,000 barrels a day, would be less inflationary than an import fee, and would give the Treasury a dandy windfall of $9 billion a year. But such a tax, while salutary, would do nothing to encourage domestic oil production.

▶ **OPEN UP MORE FEDERAL LANDS FOR OIL AND GAS EXPLORATION.** The two most promising U.S. regions yet to be explored are the waters off the California coast, where the American Petroleum Institute estimates 3.2 billion barrels of oil could be profitably produced, and the Arctic National Wildlife Refuge, geologically next door to the 9.6 billion of proved reserves at Prudhoe Bay, which currently supply 20% of domestic U.S. oil. Unfortunately, no one can promise significant finds in either area, and environmentalists fear that oil drilling would despoil them. The annals of petroleum exploration are filled with supposed sure things like the Mukluk field in Alaska and the Baltimore Canyon off the Atlantic Coast that turned out to be billion-dollar dry holes.

Nevertheless, considering that production from offshore California and the Arctic alone might replace as much as one million barrels a day of imported oil, Congress should give industry a chance to see what it can find. The legitimate concerns of environmentalists can be protected with tough federal regulations. Says Chevron's George Keller: "Our industry's long experience in Arctic areas has demonstrated that oil exploration and development can be conducted with utmost care and protection for the natural environment." So as not to despoil the wilderness spanned by the Alaska pipeline, the builders insulated the pipe heavily to prevent the flowing crude's heat from escaping and melting the frozen tundra. The pipeline was either raised or buried as necessary to preserve caribou crossings.

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Congress should also improve the terms under which it auctions leases. As it stands now, in order to win a bid on an offshore lease, companies often must pay multimillion-dollar bonuses before they know whether a leased field would yield oil. A more sensible plan might be for the government to agree to accept smaller up-front payments in exchange for a greater share of royalties if a company strikes it rich.

▶ **BUILD UP THE STRATEGIC PETROLEUM RESERVE.** The half billion or so barrels of oil now stashed in salt domes exceeds the amount of oil held back from world markets by the Arab embargo of 1973, according to John Elting Treat, executive publisher of the *Petroleum Intelligence Weekly* newsletter. The SPR's very presence discourages the use of oil as a weapon against the United States. William Hogan, professor of political economy at Harvard, estimates that once the SPR reaches its target of 750 million barrels, its oil could substitute for half of all U.S. imports for about nine months and give a jittery world situation time to sort itself out.

The Administration has proposed cutting the fill rate for the SPR in half, to 35,000 barrels a day in 1988. Representative John Dingell (D-Michigan), chairman of the House Energy and Commerce committee, has been urging the White House to keep the reserve acquisition at 75,000 barrels a day and expand the pipeline system to distribute the oil. Dingell is also a strong advocate of better contingency planning for operating the reserve and allocating petroleum in the event of a future energy crisis. "The Administration has said its policy in the event of a shut-off is to let the market take care of it," says Dingell. "I've told them at the White House that when the shut-off happens and the market *doesn't* take care of it, any fellow who comes to town with a length of rope, a pot of hot tar, and some feathers will know where to find them."

▶ **REPEAL THE WINDFALL PROFITS TAX.** Since the last time oil companies had a few extra bucks they were apt to spend them acquiring the corporate equivalent of some very slow horses, the windfall profits tax looked like a good idea when it was passed in 1980. Oil was poised for flight into the $50 and $60 range, so the Congress mandated a tax that at worst could take 70% of the revenues producers earned in excess of $18.50 a barrel. Because prices now are below $18.50, the tax is not generating any revenues for the Treasury and so could be repealed without any loss. "It's a bad tax," says MIT economist Adelman. "Companies don't invest in development that would otherwise be profitable."

▶ **RESTORE THE DEPLETION ALLOWANCE.** This tax break permitted drillers to depreciate the value of the oil they pumped by 27.5% as they took it out of the ground. In 1975 Congress took the depletion allowance away from big integrated producers but let independent oil and gas concerns keep it, as well as other natural resource companies like copper miners and forest-product concerns. Says George Keller of Chevron: "Depreciation allowance is now a dirty word, and yet it makes eminently good sense. I don't know why your tax treatment should be different if you produce 100 barrels a day instead of producing 20,000. The economics are no different." Senator Phil Gramm (R-Texas), the balanced-budget advocate, argues that some, perhaps all, of the lost revenue caused by restoring the depletion allowance would be offset by additional taxes on the increased production it inspires. However, before the government starts handing out tax breaks to the industry, it should demand in return that any increased profits are reinvested in energy production.

▶ **ENCOURAGE CONSERVATION.** Lower oil prices seem to be dissipating the urgency of conservation. The President has vetoed a bill that set improved efficiency standards for household appliances, although Congress is preparing to override that veto. In 1986 the Administration decided to yield to the auto industry's pressure to roll back the manufacturers' fleet fuel-economy averages from 27.5 miles per gallon to 26 miles per gallon. Congress is debating repeal of the 55-mile-an-hour speed limit, and as a result some states are less determined to enforce it. Cutting down on gasoline consumption is especially important because some 40% of all petroleum is used by motorists, and the percentage is growing. Since there is presently no economic alternative to gas for cars, this is no time to abandon those fuel-sipping engines and a sedate speed limit.

The point of U.S. policy is to help the nation muddle through until expanded use of alternative sources of energy can make it energy sufficient—or nearly so—in the first few decades of the next century. But, "until we get to the long run, we're stuck in the short run, where all sorts of things can happen to send prices spiking up and down," says Adam Sieminski of Washington Analysis Corp., a research firm. It is also unfortunately true that the best thing for the country in the short run—low oil prices—is among the worst things for the country in the long run. ■

UTILITIES KICK THE CRUDE HABIT

NO FEASIBLE substitute for gasoline is anywhere in sight, but alternative fuels can compete in other ways, notably in the production of electricity. The nation's utilities are big energy guzzlers, accounting for 36% of the BTUs consumed in 1985, the most recent figure available. And they have become experts at calculating the relative costs of such oil surrogates as gas, coal, hydro, and nuclear fuels. Today, according to estimates from Data Resources Inc., the Lexington, Massachusetts, consulting firm, oil accounts for a scant 5% of all electric power generated in the U.S. by utilities; coal, 55% of U.S. power. Second to coal is nuclear at 17%, followed by hydro at 13% and gas at 10%. DRI reckons that nuclear's share of power generation will rise to 21% by 1990. Energy analysts point out that this growth will largely displace oil.

Nuclear plants that are finally up and running have such low operating costs that it pays to run them full time. In its first full year of functioning, Pacific Gas & Electric's controversial Diablo Canyon plant in California had one of the highest operating efficiency rates of any utility plant in the country. But regulators have not yet decided how much of the $5.8-billion tab for building it will be passed along to the ratepayers in their utility bills. And the prospect of putting billions into customer rate bases—along with public fears about plant safety—has led state and local politicians to oppose licensing either New Hampshire's Seabrook or Long Island's Shoreham nuclear facilities.

Given the beating they have taken on the capital costs of their nuclear plants, those utilities that foresee a need for additional capacity in the 1990s are looking for fuel sources that require only simple, manageable technology that can be added in small increments with short lead times. Clean, cheap imported hydro power could provide an alternative to building new capacity; Canada is awash with the stuff. But high-power transmission lines are already carrying close to their maximum loads in the U.S., and new lines would run into stiff po-